

DOUBLE-BOTTOM TANK AND MIXING AUGER FOR CHOPPINGANIMAL FEED

The present descriptive memory refers, as its  
5 title indicates, to a double-bottom tank and mixing auger  
for chopping animal feed, of the type that is transported  
using a trailer or that is incorporated into a self-  
propelled vehicle. Said tanks are used to chop and mix  
animal fodder ingredients, preferably in agricultural  
10 installations.

Currently, several types of tanks are used for  
animal feed chopping. Animal feed usually includes  
various types of forage, such as alfalfa, straw, vetch,  
15 etc. as well as different varieties of cereal flour. The  
animal feed is chopped inside the tank by one or more  
interacting cutting screws made up of spirals that  
converge towards the centre of the screw, where sometimes  
there are several spiral blades that create a diameter  
20 noticeably narrower than that of the spirals.

As the Patent ES9301070 discloses, the tank  
generally used is a V shaped container with a rounded  
bottom, and usually the diameter of the bottom is wider  
25 than the diameter of the circle described by the spirals  
of the cutting roller when they rotate. Those tanks,  
currently used to chop animal feed, have the main  
disadvantage of accumulating the product in the centre of  
the tank, i.e. between the external diameter of the  
30 central blades and the rounded bottom of the tank, which  
means the shafts of the chopping mechanisms, i.e. the  
chopping spiral screws, have to generate quite a high

operating torque, and sometimes this strain can even buckle them.

To solve this problem affecting current animal feed chopping tanks, the double-bottom tank and mixing auger for chopping animal feed that is the subject of the present invention has been developed. Close to the centre of the bottom there is an internal irregularly-shaped insert, preferably quadrangular and of variable thickness, depending on the actual requirements, which bends to adapt itself to the rounded bottom of the tank, in such a way that it rests partly on the bottom of the tank and partly on either side. This rounded part creates a double bottom. Naturally, the insertion of this part between the bottom of the tank and the external diameter created by the central chopping blades means that the accumulation of product is minimized, precisely at the most inconvenient point of the chopping screw, at its centre. The mixing auger has been improved with two blades disposed at 180°, of laminar section and variable thickness, placed at the geometrical centre of the auger shaft. These blades improve the mixing process of the product whilst it is turned over, helping the mixture to move forward and significantly reducing mixing times.

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The invention being put forward brings one main advantage over the systems currently used to chop animal feed: as a consequence of the combined effect of the said elements, the operating torque is significantly improved, towards the centre of the tank and, at the same time, overloads are prevented in that area, as there is no unnecessary accumulation of product. Obviously, the chopped product flows more easily, improving

significantly the operating torque of the machine and increasing productivity.

To better understand the subject of the present invention, the preferred optimal assembly is represented in the annexed plan. In this plan:

Figure -1- shows a side section of the central part of the double-bottom tank for chopping animal feed, with a detailed view of the position of the insert and of the mixing auger.

Figure -2- shows the double-bottom tank for chopping animal feed in perspective, with a detailed top view of the bottom of the tank with its additional insert.

Figure -3- shows a front section view where we can see the blades.

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The double-bottom tank and mixing auger for chopping animal feed being put forward comprises, as can be seen from the figures mentioned above, a frame (1) made of any of several materials and laminar walls that has an insert (3) installed close to the centre of its rounded bottom (2). This part creates a double bottom and two thirds of the part rest on either side of the tank.

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The said insert (3) consists of an irregularly-shaped part, preferably quadrangular and of variable thickness that is not flat but curved and has a bevel edge (4) around its perimeter that starts at the base and

ends at the top face. At the centre of the shaft of the mixing auger (5) there are two blades (6) disposed at 180°.

5           A detailed description of the rest of the features of this tank and the chopping roller is deliberately omitted, as they are not considered to be the subject of any claim.

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